IN THE CLAIMS

Claim 1 (original): An illumination unit comprising

- a high-power light source (1),
- a first optical element (12) for focusing the light emitted from the high-power light source (1),
- a photometric head (8) for illuminating an object (3) with a predefined brightness value,
- an optical waveguide (2) for transmitting the emitted and focused light to the photometric head (8),
- a displacement unit (6) for varying the axial distance between the high-power light source (1) with the first optical element (12) and the inlet of the optical waveguide,
- wherein the cross-sectional surface of the focal point is at least twice as large as the cross-sectional surface of the optical waveguide (2) on the light inlet side, and the intensity of the light coupled into the optical waveguide (2) can be varied by axial displacement of the high-power light source (1).

Claim 2 (original): An illumination unit as claimed in claim 1, in which a second optical element (13) is provided on the light inlet side of the optical waveguide (2) in order to adapt the light beam paths outside or inside the optical waveguide (2).

Claim 3 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which a third optical element (14) is provided at the beam input or beam output of the photometric head (8).

Claim 4 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which the high-power light source (1) is a gas discharge light source.

Claim 5 (original): An illumination unit as claimed in claim 4, in which the gas discharge light source is a metal halide light source.

Claim 6 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which the optical waveguide (2) consists of a liquid.

Claim 7 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which a device for moving filters or diaphragms in and out is provided directly behind the first optical element (12).

Claim 8 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which a photosensor (10) for detecting the light intensity and/or for controlling the illumination of the object is provided in the photometric head (8).

Claim 9 (currently amended): An illumination unit as claimed in ~~one of the preceding claims~~ claim 1, in which a camera (11) which is provided for recording the object can be used to control the illumination of the object.

Claim 10 (original): A method for the controlled operation of an illumination unit for uniformly illuminating an object (3) by means of a high-power light source (1), wherein the light that has been emitted from the high-power light source (1) and focused is passed to the object (3) via an optical waveguide (2) and a photometric head (8) with a photosensor (10), in each case a variable amount of light is coupled into the optical waveguide (2) by varying the axial distance between the high-power light source (1) and the light inlet face of the optical waveguide (2), the cross-sectional surface of the light beam path at the focal point is at least twice as large as that of the optical waveguide (2) on the light inlet side, and the illumination of the object (3) is controlled by means

of the photosensor (10).

Claim 11 (original): A method as claimed in claim 10, in which various filters or diaphragms can be moved in between the high-power light source (1) and the optical waveguide inlet, so that the light beam path can be conditioned accordingly.

Claim 12 (currently amended): A method as claimed in claim 10 ~~or 11~~, in which additionally a signal from a camera (11) which is provided for recording the object is used to control the illumination of the object.

Claim 13 (currently amended): A method as claimed in ~~one of claims 10 to 12~~ claim 10, in which, by using an adjustment element on an object support, the brightness at this element is measured by means of a camera and is adjusted to a desired value for the brightness via the control loop, wherein the value measured by means of the photometric head is used as the new desired value for the first control loop of the illumination, until a new value is defined by the camera.